CLAIMS

What is claimed is:

1. A data input device comprising:

an optically generated image of a data input device, said image comprising at least one input zone actuable by an action performed thereon by a user;

a sensor operative to sense the action performed on said at least one input zone, and to generate signals in response to said action; and

a processor in communication with said sensor operative to process said signals for performing an operation associated with said at least one input zone.

2. The device according to claim 1 and further comprising a light source which generates a light beam, and beam-moving apparatus which moves said light beam to generate said optically generated image of said data input device.

3. The device according to claim 2 wherein said beam-moving apparatus comprises a mirror arranged to reflect said light beam.

4. The device according to claim 3 and further comprising an actuator operatively connected to said mirror, wherein said actuator moves said mirror to reflect said light beam to form at least a two-dimensional image of said data input device.

5. The device according to claim 2 wherein said beam-moving apparatus comprises a scanner arranged to scan said light beam, and an actuator operatively connected to said scanner, wherein said actuator moves said scanner to scan said light beam to form at least a two-dimensional image of said data input device.

6. The device according to claim 1 wherein said data input device comprises a key of a keyboard.

7. The device according to claim 1 wherein said data input device comprises a keyboard.

8. The device according to claim 1 wherein said data input device comprises a mouse with at least one input button.

9. The device according to claim 1 wherein said data input device comprises a key of a touch pad.

10. The device according to claim 1 wherein said sensor comprises an optical sensor.

11. The device according to claim 10 wherein said optical sensor comprises a CCD.

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12. The device according to claim 10 wherein said optical sensor comprises a position sensing device (PSD).

~~13. The device according to claim 1 wherein said sensor comprises an acoustic sensor.~~

~~14. The device according to claim 1 wherein said sensor comprises a movement sensor.~~

15. The device according to claim 1 wherein said processor is in communication with an output device.

16. The device according to claim 15 wherein said output device comprises at least one of a computer, a mobile telephone, a switch, and a palm-held computer/calculator.

17. A method for data input comprising:

generating an optical image of a data input device, said image comprising at least one input zone actuable by an action performed thereon by a user;

performing an action on said at least one input zone;

sensing the action performed on said at least one input zone;

generating signals in response to said action; and

processing said signals for performing an operation associated with said at least one input zone.

18. The method according to claim 17 wherein the step of generating the optical image comprises generating an image of a keyboard and the step of performing an action comprises pressing keys of said image of said keyboard.

19. The method according to claim 18 wherein the step of processing said signals causes typing alphanumeric characters on at least one of a computer, cell phone, palm-sized computer/calculator and PDA.

20. The method according to claim 18 and further comprising modifying said image of said keyboard so as to modify a configuration of keys of said keyboard.

21. The method according to claim 18 and further comprising:

optically generating an image of characters of a first language on keys of said keyboard;

selecting a second language different from said first language; and

optically generating an image of characters of said second language on keys of said keyboard.

22. The method according to claim 17 wherein said optical image of said data input device is a holographic image.

23. The method according to claim 17 wherein said optical image of said data input device is generated by means of a monochromatic laser.

5   24. The method according to claim 17 wherein said optical image of said data input device is generated by means of multiple laser sources having different colors and wavelengths.

25. The method according to claim 17 wherein said optical image of said data input device is generated by means of a single laser source and using color and wavelength

10   splitters to split light from said single laser source.

26. The method according to claim 17 wherein said optical image of said data input device is generated by means of differently polarized light beams.

27.   The method according to claim 17 wherein the step of sensing comprises:

detecting light reflected from an object within a silhouette of said image; and

15   analyzing a reflection of said light to determine a spatial position of the object.

28. The method according to claim 17 wherein the step of sensing comprises:

providing a light beam emanating from a light source;

detecting light reflected from an object within a silhouette of said image, corresponding to said light beam; and

20   analyzing an angle of said light beam and a time for the beam to be reflected back from said object to a reference to determine a spatial position of the object.

29. The method according to claim 28 wherein said reference comprises an optically readable reference.

30. The method according to claim 29 wherein said optically readable reference

25   comprises a tangible bar code strip.

31. The method according to claim 29 wherein said optically readable reference comprises an optically generated bar code strip.

32. The method according to claim 28 wherein said optical image of a data input device is generated by the same light beam whose reflection is used to determine the

30   spatial position of the object.

33. The method according to claim 17 wherein the step of sensing comprises:

providing a non-visible-light beam emanating from a non-visible light source;

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detecting an image of said non-visible light impinging upon an object within a silhouette of said image of the data input device; and

analyzing said image of said non-visible light to determine a spatial position of the object.

5   34. The method according to claim 33 wherein said non-visible light beam comprises an infrared beam and said image of said non-visible light comprises an infrared image of said object.

35. The method according to claim 17 and further comprising detecting light reflected from an object within a silhouette of said image and preventing said image

10   from impinging upon said object.